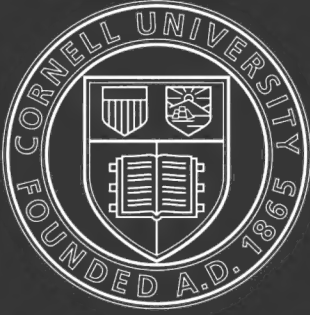


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Handwritten signature

April 13, 1928.

Prof. Ralph S. Hosmer,
Cornell University,
Ithaca, N. Y.

Dear Prof. Hosmer:

I am sending you a copy of the forest survey of Barnstable County which you requested at the meeting last summer at Mr. Ayling's house in Barnstable.

The work which the committee outlined and Mr. Reynolds recommended, has not borne quite as much fruit as we expected, but we have accomplished one thing and that is a passage of the bill to provide another forest warden in the lower six towns on the Cape. This will carry on the work which was started in the first nine towns below the Canal.

Some time ago Mr. Collingwood and I met with the county agent to discuss the possibility of reforestation work among the farmers on Cape Cod. The county agent was willing to cooperate, but the directors did not feel inclined to accept the project until the farmers requested it.

I have sent out a circular letter, together with a return card asking for a survey of the idle land among the farmers on the Cape, but up to date have not received any returns, but I feel optimistic in the matter and no doubt within a year or two we will see considerable planting on Cape Cod.

Yours very truly,

RBP/G

R. E. Parmenter
Extension Forester.

THE FORESTS
OF BARNSTABLE COUNTY
Massachusetts

The Results of a Forest Survey
of the
Fifteen Towns in the County

By R. B. Parmenter
Under the Direction of W. A. L. Bazeley, State Forester

.....

Department of Conservation
Division of Forestry

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Massachusetts



BARNSTABLE COUNTY

Scale: 1 inch = 7 miles

FOREWORD

The forest survey of Barnstable County has been completed and the results are given in this publication. The field work necessary to obtain the results in this survey was done by forestry students under the direction of Mr. R. B. Parmenter, assistant forester. He has also arranged and compiled the data as given herewith..

This survey is a part of the work which is being done by the Department of Conservation in order to obtain data on the entire forest growth of the State. It is especially valuable at this time because an extensive and intensive program of reforestation and fire protection is now being carried on in Barnstable County.

William A. L. Bazeley
State Forester and Commissioner
of Conservation.

The Forests of Barnstable County

Reasons for the Survey

In order to plan the work of the Department of Conservation it is necessary that we know definitely how much forest land there is in the State in comparison with the waste and idle land, and also what amount of land is used for agriculture. We are asked for this information many times, but we have not had data from which we could give an authoritative statement. The forest land of the State is our heritage and the public looks to us to handle it in a scientific and satisfactory manner. If we do not have proper information at hand, a satisfactory program for forest management cannot be laid out.

The forest land of Barnstable County is mostly divided into small holdings in the form of woodlots and since they are repeatedly cut and sometimes burned, they vary greatly in age, composition and quality. A survey made under these conditions is rather difficult and at best only approximate results can be expected, but we find that these approximate results give us better data than any that have heretofore been obtained and with the aid of this we hope to assist in forest management in the Commonwealth.

Method of Survey

Each man was equipped with a hand compass, a tallying machine to keep count of the paces, a notebook and pencil, and a copy of the United States topographical map of the town he was surveying on which lines were drawn an inch apart and at right angles to the roads. Starting on a road or edge of a pond on one side of the town,

the man followed the compass line, whether east or west, north or south, as indicated on the map, across the town to the opposite town line. As he went along he noted the size of the trees, species of trees, and percentage of each species in the stand, at the same time noting the distance covered by each type. All of this data he placed in his notebook which had been ruled off to represent the distance covered on the ground. As soon as he finished one line he walked to the next one and finished as much as possible before the end of the day.

In order to keep the notes concisely, symbols were used indicating the species of trees and size classes; for example, the following note on a line A, 40 E₃ 60, 600 means this: a mixed stand of pine and oak, the pine of mature size ready to cut and constituting 40% of the stand and oak of cordwood size composing 60% of the stand and extending 600 feet along the line run. The number of feet in each type as compared with the total number of feet run in the town is then proportioned into the total area of the town and the area of each type in acres calculated.

It was necessary for brevity in the final tabulation to consolidate much of the detailed information secured in the field work.

Explanation of Data

Size Classes

In this survey four size classes were used, but for our own use we divided class 4 in order to define more closely plantable land. Class 4 has to do with land that is quite brushy on which we would be only able to plant 200 or 300 trees to the acre, while class 4 is land that is plantable one hundred percent without any brushing.

Following is an explanation of the various size classes:-

Class 1 forms the oldest and largest size class, and contains specimens whose diameters, breast high, average 10 inches or more, and whose height will average 60 to 80 feet.

Class 2 is made up of trees whose average diameters run from 8 to 10 inches and whose height will average about 50 to 60 feet.

Class 3 is composed of the cordwood size and specimens of this class average about 4 inches in diameter and 40 to 50 feet in height.

Class 4 is sproutland on which the trees are not over 2 inches in diameter and 10 to 15 feet in height.

Class 4 is sproutland with scattered open areas which should be planted so as to bring the land up to 100 percent production.

Forest Types

The forest types of Barnstable County are entirely different from types found in any other county in the State. Following is a list of types and a brief description of each.

White Pine - Although White pine is well scattered all over the Cape, nevertheless, it is not situated in any large tracts, consequently, we have not been able to list it as a type. There are many large specimens and a few small stands of merchantable pine. There are also areas of large fire killed pine, proving that this type was one of the most important at one time.

Oak - The Oak type covers 27% of the forest areas of Barnstable County. It is the largest type of commercial importance found on the Cape. It is made up of 80% or more of oak. There are very

few other species found in mixture with the oak except in a few rare cases. These areas of oak are both of cordwood and sprout size. A great deal of oak has been removed from these areas in the past for use in shipbuilding and many other allied industries.

Pitch Pine - The pitch pine type covers 36% of the forest area and being one of the few species found on the Cape because of its fire resistance, there are a few large areas in which pitch pine is of merchantable size, but the greatest proportion of the areas is of cordwood size or smaller. It is a very prolific seeder, growing anywhere, and also quickly recovers from the effects of fire.

Pitch Pine and Oak - This type consists of Pitch Pine and oak in proportions very nearly equal. Areas in which Pitch Pine or Oak predominate, we were able to place in either one or the other class, but where the two species are very nearly equal it was found necessary to place them in this joint type. This comprises 18% of the forest cover of the Cape.

Scrub Oak - Because we wish to be able to carry on forest management on the Cape, we divided this type into two parts, one in which the scrub oak is five or six feet in height and so thick that it is impossible to do any planting, and the second scrub oak (plantable) which is composed of areas covered with scrub oak, but with considerable open area suitable for planting. These two types compose 19% of the forest cover.

Cedar - There were found a number of cedar swamps with growth ranging from four inches up to eighteen inches in diameter. These areas have produced timber large enough for construction purposes

in the past and some of them are able to produce good quality cedar at present.

Transition Types

Idle Land - This type includes all land that has been allowed to revert to forest, abandoned pastures, farm land as well as burned areas. There are also a number of areas which had been cut off and no growth was apparent at the time the survey was completed. All of these examples come under this heading.

Non-Forest Types

Salt Marsh - This term covers all marshes along the seacoast up to tidewater on the streams and any other areas that are marshes due to the action of the salt water.

Agricultural - Land under this heading is all under cultivation. Included in this are all swales which are cut for hay as well as all the mowing lands.

Sand - Due to the fact that there are many extensive wastes of shifting sands on Cape Cod, it was necessary to make a separate heading for this type of land.

Pasture - This includes only such lands as are used for grazing.

Residential - This term explains itself. It includes business sections, cemeteries, fair grounds, etc.

Water - All inland waters come under this classification, such as ponds, lakes and rivers.

Barnstable County Lies in the southeastern part of the State, comprising the entire length of Cape Cod. The New York, N. H. and Hartford Railroad covers the county well, so that all points are easily accessible, with the addition of good roads for which the Cape is famous.

The chief industries of Barnstable County are the raising of asparagus and cranberries, together with general farm products. There are a few small industries located in Yarmouth, Cotuit, Barnstable, Dennis and Harwich. In Cotuit they manufacture well points, while in Yarmouth they manufacture screen used in the manufacture of paper. In the other named towns are small industries making windmills and other wooden toys for sale to the summer tourists.

Provincetown is noted for its fishing industries together with its artist colony, but the major activity of Barnstable County is its use as a summer playground. Tourists from all sections of the country flock there for the bathing, boating and other outdoor pleasures. Due to the fact that the natives have not considered the growth of timber worth a great deal, fires have been allowed to run rampant, consequently, the forest cover found on Cape Cod consists of scrub oak and pitch pine, both species being fire resistant. There are, however, in Wellfleet and in Harwich and Brewster, stands of oak which compare very favorably with other stands found growing under similar conditions. There are also a few stands of native white pine which have fortunately been able to grow unmolested by fire. Due to the fact that fires have been very prevalent and allowed to burn sometimes for days, the people have not considered it worth while planting trees to take the place of those burned. The time has come when these fires can be held in check, the people are

educated to the necessity of protection from fire and are beginning to realize that fire does damage to the soil as well as destroying the forest cover. The Commonwealth has purchased a large tract of land in Sandwich and Bourne which is to be developed into a State Forest. In addition the Commonwealth of Massachusetts has planted a number of reforestation lots situated in Wellfleet, Brewster, Yarmouth, Dennis, Sandwich, Barnstable and Falmouth. The success of these numerous lots has proven beyond a doubt that the soil is capable of producing good timber. With the aid of man in the suppression of fires, timber of merchantable quality can be grown, since many of these lots were planted in sheer sand and have grown very well in spite of that handicap. Province lands in Provincetown have proven conclusively that through the use of trees we can expect to hold the sand from entirely covering towns on the Cape and that these same trees will grow there even under the most adverse conditions.

Topography.

Barnstable County has very few elevations of over 200 feet. From this elevation it slopes to sea level. Telegraph Hill in Bourne is called the highest point on the Cape, with an elevation of 200 feet. The entire county is well interspersed with ponds, a few swamps and many streams. There are cedar swamps in Dennis, Yarmouth, Barnstable and Mashpee. The cedar in these swamps shows growth from eight to eighteen or twenty inches diameter. Some of the larger rivers in Barnstable County, Bass River, Pamet River, Santuit River, Mashpee River, Childs River and numerous other smaller

streams, drain all of the ponds and swamps. There are a great many sizable ponds throughout the County, a number of which are surrounded by summer camps, such as John Pond and Ashumet Pond, Mashpee Pond and Wakeby Pond in Mashpee; Chequaquet Lake and Cotuit Pond in Barnstable; Lawrence Pond, Triangular Pond, Spectacle Pond, Peters Pond in Sandwich; Pilgrim Lake in Truro; Gull Pond, Great Pond, Sheep Pond, Long Pond and the Mill ponds in Brewster and Pleasant Lake in Harwich and Follins Pond, Mill Pond and Swann Pond in Yarmouth. All of these ponds are well situated for use by the summer people. In addition to all of these waterways, there are an unusual number of bays and necks on which summer homes have been built.

Soil.

The greater part of the soil on the Cape is glacial deposit. History tells us that there were at least two glaciers which came down over that section, dropping terminal as well as lateral moraines and gouging out the hollows and forming the rivers and hills which we find today. The soil in the towns of Orleans, Eastham, Truro, Wellfleet and Provincetown consists principally of sand. The soil on the other towns of the Cape which are Brewster, Harwich, Chatham, Dennis, Yarmouth, Barnstable, Mashpee, Sandwich, Bourne and Falmouth, have a very good mixture of loam, raising the texture of the soil to a point where it is capable of producing much better vegetation than the first named towns. Even the swampy areas are not what is commonly visualized as swamps. They are low, wet areas, but are well drained and are able to produce a good quality type of timber. Many of the swamps which were salt marshes originally have been sweetened by the erection of dykes, so that cranberry bogs are producing on what at one time was waste land.

Forest Conditions.

Barnstable County lies in the white pine section of New England. There are found today many large white pine stumps as well as cedar stumps, proving that at one time Cape Cod was well timbered. History tells us that one of the original old-fashioned saw-mills was situated in Barnstable. This saw-mill consists of a deep shaft sunk in the earth on the bottom of which rested a mechanism with a screw winch attached, the log being dropped into the shaft and two men sawing the lumber at the mouth of the pit as the log was raised by means of the screw winch, the sawyers cutting out lumber required for building homes and many other uses, but all that is passed and almost forgotten. Today we have very little timber of merchantable size in Barnstable County. Forest land is there ready for planting. The species found commonly are pitch pine and scrub oak, but we found a few old plantations, two in Orleans and one in Wellfleet, in addition to the smaller plantations made by the Commonwealth of Massachusetts. These older plantations consisted of white pine, red pine, Austrian, Scotch pine, American larch, chestnut and pitch pine. In Tonset, which is a part of Orleans, there have been planted red spruce, white spruce, maple, grey birch and catalpa. These had been planted a number of years ago and are now all growing well. White, red and black oak were found in almost all parts of the Cape. In Falmouth I found many varieties of trees, such as beech, white birch, hickory, tulip and sour gum. In Barnstable and Harwich I found considerable beech mixed in with oak and other types of hardwoods. On account of the

varied number of species it has been necessary to group them into types and herewith is given a table showing the area of these forest types and non-forest types of the whole county. It will be seen from this table that the forest area covers a little more than half the county. The oak type which consists of white, red and black oak covers 27% of the total area. The pitch pine covers 36% of the total area. The other types, namely scrub oak which is plantable to a certain extent, pitch pine and oak and scrub oak which is so thick that we cannot plant it, comprise the remainder of the forest land. A great deal of this idle and scrub oak land, together with areas of hardwoods that will be cut off for cordwood from time to time, can be planted with valuable timber species. Cape Cod is by no means utterly hopeless. We can have forests in that section which will be as good if not better, than in some other sections of the State if the matter is given strict attention.

Turning our attention to the matter of fire, we found areas in Falmouth, Bourne, Sandwich, Mashpee, Dennie and Yarmouth, as well as Wellfleet, which had been burned over from one to three times, leaving the soil in such a sterile state that nature has a hopeless task in trying to seed it. It is necessary for man to step in and plant the trees. This condition has been allowed to come about through lack of foresight and absolute carelessness of the landowners on the Cape, but we believe that through education, the forest fire prevention campaign now being carried on by this department over the Cape and the publicity given it, that we can fully expect to see these areas remain free from fire in the future. Large stands of old growth pine in Falmouth which were absolutely

killed by the fire, prove beyond a doubt that at one time valuable white pine covered this area of waste and burned land. The stock in trade of the people of Cape Cod is primarily their landscape and if they allow this to deteriorate they will soon find that instead of Cape Cod being a playground it will be abandoned and the summer people will look elsewhere for beauty spots.

TOTAL FOR BARNSTABLE COUNTY

FOREST TYPES

Approximate size classes

	1	2	3	4	Total	Per Cent
Forest Types	Acres	Acres	Acres	Acres	Acres	Forest Town
Pine						
Miscellaneous						
Hardwoods						
Oak			5352	34488	39840	27
Scrub Oak (Plantable)				12696	12696	8
Pine & Hemlock						
Cedar		31	31		62	
Pitch Pine & Oak			5766	22139	27905	18
Swamp Maple						
Grey Birch						
Oak, Maple & Grey Birch						
Scrub Oak				16590	16590	11
Pitch Pine	141	11229	43296	54666	36	
Total	172	22378	129209	151759		
Percentage		15	85		100	58
Transition Types						
Idle Land					23759	9
Brush Swamp						
Non-Forest Types						
Salt Marsh					8518	3
Agricultural					33819	13
Sand					1678	1
Pasture					503	
Residential					32152	12
Water					10758	4
Total area of county					262946	100 100

BARNSTABLE

This is the largest town on the Cape and also the County Seat. Pitch pine and oak and pitch pine alone cover equal portions of this town, with the oak type coming close second. From the table we note that the size classes are mostly cordwood size and smaller, pitch pine being the only one which has a size class large enough to put it into the merchantable class. In the past these areas have produced considerable merchantable timber, but due to the ravages of fire, insects and the ruthless cutting by man, they have now been reduced to smaller size classes.

In the vicinity of Cotuit there were found a few stands of large white pine and on the shore of Santuit Pond were found a few large specimens of white pine which lead us to believe that this species was quite prevalent at one time. It also proves to us that white pine can be grown to merchantable size if the matter is given a little attention. The idle land of which there are 3310 acres and the plantable scrub oak land of which there are in the neighborhood of 1,000 acres, may all be covered with white pine which is the most valuable species to be grown in this town. These areas of waste land are being added to yearly by the cutting of cordwood and burning over. The Department of Conservation has planted a few reforestation lots, private individuals have also planted considerable land and all of these areas are now showing promise. Large areas of white pine would add greatly to the beauty of this town and draw a large number of summer people. During the recent development on Grand Island there were 150,000 feet of white pine lumber, together with considerable cedar, cut and this lumber is now being used in the construction of the houses and the clubhouse on the golf links. There is consid-

erable white pine left on this island which is in good growing condition. The reason that we have so much scrub oak and pitch pine in this town is because these two species are extremely fire resistant and have been able to grow and reproduce under the most adverse condition. This statement holds true for every town on the Cape.

The town of Barnstable was one of the first to set aside land for a town forest. Falmouth has followed suit but the other towns on the Cape can very well follow the example set by these two. A town forest is a valuable asset, not only to the present generation, but for the future.

The real estate developers during the past year have done considerable forestry without knowing that they were doing such work. There are many areas of course, which have been cleaned out, brush cut and thinned, so that in time this area will produce sizable cordwood. These areas may not ever reach maturity, but in the meantime they will show what can be done in forestry on Cape Cod. They will be a living example of the results obtained by thinning.

BARNSTABLE

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			707	4442	5149	22	
Scrub Oak (Plantable)				948	948	4	
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			920	7455	8375	37	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak							
Pitch Pine	141	1768	6564	8473	37		
Total	141	3395	19409	22945			
Percentage	1	15	84			100	58
<u>Transition Types</u>							
Idle Land					3310		8
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh							
Agricultural					7002		17
Sand							
Pasture					241		1
Residential					5008		12
Water					1650		4
Total area of town					40156	100	100

BOURNE

This town has very nearly 50% of its area covered with scrub oak but fortunately this type of scrub oak land lends itself to planting, so that we can promise a favorable future for this town. The reason that we have so much of this scrub oak land is that there have been disastrous fires burning up all of the young reproduction of other valuable species, burning the humus and leaving the land in a very sterile condition. We have also a great many stands of scrub oak so dense that it is impossible to do any planting without expenditure of considerable money, but we believe that the result will warrant the cost. On the ridges to the north and west there are large areas of pitch pine and oak. These areas are of cordwood size or smaller, in fact most of the growth in this town is reproduction that is so small as not to be merchantable, even for cordwood. A considerable portion of this waste land which is now covered with scrub oak or has been cut off and just lying idle, must be planted. This is the one and only solution to the problem in this section.

There was so much of this scrub oak and waste land that it was necessary for the department of Conservation to step in and purchase a large area on which planting has been done and will be done in the future. Fire lines will be built and this area will gradually assume the outlines of a forest. Large areas of this type growing to valuable timber will be to the advantage of all who enjoy travelling on Cape Cod.

BOURNE

FOREST TYPES

Forest Types	Approximate size classes				Per Cent		
	1	2	3	4	Total	Forest	Town
	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak				1342	1342	7	
Scrub Oak (Plantable)				7714	7714	42	
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			376	3575	3951	21	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				3938	3938	21	
Pitch Pine			176	1342	1518	9	
Total			552	17911	18463		
Percentage			3	97		100	69
Transition Types							
Idle Land					1003		4
Brush Swamp							
Non-Forest Types							
Salt Marsh					63		
Agricultural					2006		8
Sand							
Pasture							
Residential					4717		18
Water					332		1
Total area of town					26584	100	100

BREWSTER

The oak type covers about 50% of the forest area of the town. It has been ravaged by gypsy moths and has been cut off so many times that it now falls into the smallest size class. Mixed in with this oak there are a few other species, such as beech, birch and maple, but of insufficient quantity to warrant mentioning.

There are about 2,000 acres of idle land and some covered with scrub oak which is plantable, making a condition which is very favorable to reforestation. Red pine and white pine are two species which grow very readily on the type of soil found in Brewster.

In the vicinity of South Brewster and Sheep and Long Ponds there is a large area of oak of both cordwood size and smaller, with patches of beech. This beech is one to two inches in diameter but from the growth of the beech it would appear that at one time there was beech here of possibly 8 to 10 inch diameter. This oak and beech are not of merchantable quality, but if placed under forest management there is no reason why they could not be grown to timber size.

Brewster

Forest Types

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			592	3930	4522	48	
Scrub Oak (Plantable)				134	134	1	
Pine & Hemlock							
Cedar							
Pitch Pine & Oak				927	927	10	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				156	156	2	
Pitch Pine			904	2773	3677	39	
Total			1496	7920	9416		
Percentage			16	84		100	58
<u>Transition Types</u>							
Idle Land					1807		11
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					663		4
Agricultural					2393		16
Sand							
Pasture							
Residential					156		1
Water					1668		10
Total					16103	100	100

CHATHAM

The pitch pine type is the largest one found in Chatham. It covers 56% of the entire forest area, but like all the rest of the towns it falls in the reproduction class. The stands are so thick that nothing else has a chance to get through to the sunlight. In the western part of the town near the Harwich-Brewster line are areas of oak, but all too small for commercial purposes. Some time in the future they may be large enough to cut for cordwood. A planting campaign would solve the forestry problem in this town.

CHATHAM

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak				1098	1098	23	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pitch Pine & Oak				488	488	10	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				549	549	11	
Pitch Pine			81	2581	2662	56	
Total			81	4716	4797		
Percentage			2	98		100	46
<u>Transition Types</u>							
Idle Land					386		4
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					793		8
Agricultural					2663		25
Sand							
Pasture							
Residential					1524		15
Water					279		2
Total area of town					10442	100	100

DENNIS

Pitch pine covers 59% of the forest area in this town and the lack of better species can be laid to the door of forest fires and the lack of forethought of the people. There are about 3,000 acres of land which must be planted, that is the only solution that we can see to the forestry problem in this section. There are a few areas of small oak and pitch pine, but the former is not large enough for use and the latter is only temporary covering until reforestation takes place.

On the four corners near Grassy Pond there is a reforestation lot which has been planted for eleven and twelve years. This lot was probably planted when there was very little protection from scrub oak or pitch pine, so that for a long time it grew at a very slow rate. About four years ago conditions evidently became advantageous to the white pine because it began to grow at the rate of two feet a year and in some cases even faster. This lot is exceptional, but on the other hand it can be reproduced anywhere in this section of the Cape.

In the vicinity of Kelly's Bay which is an arm of the Bass River, is a good stand of cedar which is six to eight inches diameter breast high. Real estate development is under way nearby and no doubt some of this cedar will be used for posts and possibly for decorative fences some time in the future.

DENNIS

FOREST TYPES

	Approximate size classes				Per Cent		
	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak				417	417	6	
Scrub Oak (Plantable)				1251	1251	18	
Pine & Hemlock							
Cedar		31	31		62	1	
Pitch Pine & Oak			46	710	756	11	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				340	340	5	
Pitch Pine			62	4093	4155	59	
Total	31	139	6811	6981			
Percentage		2	98,			100	50
<u>Transition Types</u>							
Idle Land					1436		10
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					757		5
Agricultural					3105		22
Sand							
Pasture							
Residential					942		7
Water					796		6
Total area of town					14017	100	100

EASTHAM

The forest area of Eastham is very small, a great proportion of the town being farm land, besides being well cut up by water and crossed by streams. The largest type is pitch pine, covering over one-half the area with the usual scrub oak and small areas of valuable oak. There are 500 or 600 acres of plantable land. In addition to planting this waste land, considerable under-planting of the pitch pine areas will help to forward forestry in Eastham.

Near Eastham Centre there is a plantation of white pine which was planted a number of years ago. This white pine is now badly wind-blown and so badly flattened out that it will never be able to recover.

EASTHAM

FOREST TYPES

Forest Types	Approximate size classes				Per Cent	
	1	2	3	4	Total	Forest Town
	Acres	Acres	Acres	Acres	Acres	
Pine						
Miscellaneous Hardwoods						
Oak				544	544	22
Scrub Oak (Plantable)				190	190	8
Pine & Hemlock						
Cedar						
Pitch Pine & Oak				163	163	7
Swamp Maple						
Grey Birch						
Oak, Maple & Grey Birch						
Scrub Oak				163	163	7
Pitch Pine			54	1305	1359	56
Total			54	2365	2419	
Percentage			2	98		100 26
<u>Transition Types</u>						
Idle Land					489	5
Brush Swamp						
<u>Non-Forest Types</u>						
Salt Marsh					1753	19
Agricultural Sand Pasture					2052	22
Residential					2405	26
Water					223	2
Total area of town					9341	100 100

FALMOUTH

This is next to the largest town on the Cape and has a variety of types. The oak type is the largest with the pitch pine and oak type, as well as the pitch pine type following in order. In many sections of this town there are evidences of a good crop of white pine, but the fire has killed nearly all of it. Near the fire tower in West Falmouth there is the remains of a good stand. There are many large trees with a diameter of 12 to 15 inches. Very few of these are alive. Those that are alive are bearing seed and will do their bit toward reforesting this area, but as soon as fire hits them they are doomed. Near Jenkins Pond there is a large area well covered with white pine of all sizes. Reproduction is taking hold in fine shape and the trees are growing fast. In the vicinity of Spectacle Pond another large area of good white pine is found which is throwing a good seed crop every year. Near Deep Pond in Hatchville there are a number of large pine which have well seeded the land. With all of these large trees throwing seed it is certain that if fire is kept out a large portion of this town will come back into white pine. Near Ashumet Pond a large number of white pine two feet in diameter were standing, but these all had been fire killed. They now stand out in mute evidence of man's handiwork. On an estate in Falmouth is a good stand of larch. This no doubt had been planted but it is just another evidence of what this section is capable of doing. A number of years ago on the Fay estate in Woods Hole There were many areas planted to spruce, Scotch pine and larch. The scheme of things in this planting was to fill in small open spaces rather than lay out any regular plantation, but the results of this yearly planting are still visible and another proof of the value of

forestry work. From the Falmouth fire tower one can see for miles and note nothing but dead stubs, bare rock and no vegetation. This condition has got to be stopped and the only way to stop it is to plant and protect from fire. The people of Falmouth are awake to the present condition of their town and have set aside an area for a town forest, on which were planted a number of trees. There are also a few individuals who have planted trees on their idle land and evidences of this nature prove conclusively that all are awake to the need of forestry in this section of the Cape. Falmouth as well as every other town depends on its scenery as a drawing card and if they allow this part of their heritage to be wasted they cannot hope to hold their position as a mecca for summer visitors.

In the section of Falmouth near Woods Hole there are a number of different species of hardwoods such as maple, beech, birch, ironwood, catalpa, oak and ash. These all seem to be growing naturally, which gives the section an appearance of a regular arboretum.

FALMOUTH
FOREST TYPES

Approximate size classes

	1	2	3	4	Total	Per Cent	
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres	Forest	Town
Pine							
Miscellaneous Hardwoods							
Oak			1009	9881	10890	55	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			904	2647	3551	18	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				1940	1940	10	
Pitch Pine			1599	1992	3591	17	
Total			3512	16460	19972		
Percentage			18	82		100	68
<u>Transition Types</u>							
Idle Land					1166		4
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					53		
Agricultural					3617		12
Sand					262		1
Pasture							
Residential					3421		12
Water					769		3
Total area of town					29260	100	100

HARWICH

Harwich is another town which is well situated to draw summer residents, but like most of the other towns the forest cover is limited to many acres of oak in the small size class as well as pitch pine and oak, and pitch pine. The gypsy moth has ravaged these oak stands year after year and the effect has been almost as bad as a fire. Planting and thoughtful management is the solution of the forest problem of Harwich.

HARWICH

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			25	3362	3387	39	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			221	2270	2491	28	
Swamp Maple							
Grey Birch							
Oak, Maple, & Grey Birch							
Scrub Oak				147	147	2	
Pitch Pine			405	2331	2736	31	
, Total			651	8110	8761		
Percentage			7	93		100	61
<u>Transition Types</u>							
Idle Land					491		3
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					993		7
Agricultural Sand Pasture					1828		13
Residential					1325		9
Water					942		7
Total area of town					14340	100	100

MASHPEE

Mashpee has a large area of woodland with a small population. This is an old Indian reservation and the inhabitants are largely indians. On the shore of John Pond there is quite a large area of white pine in all stages of growth. The yearly height growth was exceptionally good, which is always a good sign and proves that the soil is well fitted for that type of growth. There is also a good cedar swamp in which the trees are 5 or 6 inches in diameter. In the Great Neck section of the town there are large stands of pitch pine. With a certain amount of management these stands could be made merchantable. This town is as little inhabited and has as few good roads, especially in the southern part, as any town on the Cape. There are about 1400 acres of idle land which have come as a result of fire, ruthless cutting and abandonment of farm land. Planting to white or red pine will solve this problem.

MASHPEE

FOREST TYPES

	Approximate size classes				Per Cent		
	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			88	1708	1796	14	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			2351	1591	3942	30	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak							
Pitch Pine			3431	3869	7300	56	
Total			5870	7168	13038		
Percentage			45	55		100	78
<u>Transition Types</u>							
Idle Land					1358		8
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh Agricultural					612		4
Sand Pasture							
Residential					263		2
Water					1347		8
Total area of town					16618	100	100

ORLEANS

Orleans is the only town on the Cape that has been fortunate enough to have had two individuals who, fifty years ago became interested enough in forestry to experiment with planting. They planted pitch pine, white pine, red pine, Scotch pine and larch and chestnut. These two individuals were John Kendricks and Sylvanus Hopkins. In 1876 John Kendricks bought larch seedlings from Wisconsin, purchased Scotch pine seed, while he bought white pine seedlings, as well as white pine seed from Plymouth County. In addition to this they dug up pitch pine seedlings and set them out in the hills of corn, so that today we may see the ridges which were formerly the rows of corn. All of these species have grown to merchantable size and show that these various species are able to do very well on Cape Cod. The chestnut was killed by the blight, but the sprouts are coming back and we are of the opinion that some time in the future chestnut may thrive on the Cape as well as in other parts of the State.

Sylvanus Hopkins planted his plantation of white pine and Scotch pine on the road from East Orleans to Tonset. He, like Mr. Kendricks, planted his seed in corn hills. He also planted red spruce, white spruce, maple, grey birch and catalpa, more for experimental purposes than for a timber stand. All of these species are growing very well considering the type of soil. Pitch pine is the predominating type, covering 70% of the forest area of the town, but it is in the small size class and will probably not amount to a great deal. Others owning land in Orleans can very well follow the example set by John Kendricks and Sylvanus

Hopkins. If they do this the future timber supply of Orleans is assured. On the main road to Orleans from Chatham we find many stands of oak. These are of merchantable size, cordwood size or smaller. The gypsy moth has riddled them, but nevertheless, they add considerably to the beauty of this road.

ORLEANS

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			172	688	860	22	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pitch Pine & Oak				313	313	8	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak							
Pitch Pine			16	2684	2700	70	
Total			188	3685	3873		
Percentage			5	95		100	43
<u>Transition Types</u>							
Idle Land					63		
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					208		2
Agricultural					3796		42
Sand							
Pasture							
Residential					985		11
Water					157		2
Total area of town					9082	100	100

PROVINCETOWN

In Provincetown there is a very extraordinary condition. Two-thirds of the area of the town has been set aside in what is known as Province Lands. On these lands have been planted in the past Scotch pine, Austrian pine, white pine and red pine. This area was nothing but shifting sands and it was necessary to hold the sand in place before planting trees. Now that the sand has been settled there are a few good stands of trees growing there. The Austrian pine is 20 to 25 years old, probably 25 feet in height and 7 inches in diameter. These trees are now standing straight and sturdy, showing their capability of growing on nothing but sand, even though swept by the constant winds that are blowing across the tip end of the Cape.

The only piece of woodland in the town is located on the road from the center of the village to Race Point Life Saving Station. There is a narrow belt of oak crossing this road and as you drive through it you realize that it is the most heavily wooded road that you have passed through on your trip down the Cape. Other than this strip of oak there is practically no woodland in the town of Provincetown. We believe that the Department of Public Works is doing all that is possible in reforesting the Province Lands, so that, except for a few outside areas of sand which could be handled in a similar way, the forestry situation is well in hand.

PROVINCETOWN

FOREST TYPES

Approximate size classes

Per Cent

1 2 3 4 Total Forest Town

Forest Types

Acres Acres Acres Acres Acres

Pine

Miscellaneous
Hardwoods

Oak 456 938 1394 100

Scrub Oak (plantable)

Pine & Hemlock

Cedar

Pine & Hardwoods

Swamp Maple

Grey Birch

Oak, Maple
& Grey Birch

Scrub Oak

Pitch Pine

Total 456 938 1394

Percentage 33 67 100 25

Transition Types

Idle Land 2800 50 .

Brush Swamp

Non-Forest Types

Salt Marsh
Agricultural
Sand 750 13
Pasture

Residential 402 7

Water 255 5

Total area of town 5601 100 100

SANDWICH

This is the third largest town on the Cape and has been ravaged by fire and insects for a good many years. In order to bring Sandwich back to its former status as a wood-producing town, the Commonwealth has purchased a large tract of land, is cutting it up into small tracts, opening up the roads, planting and otherwise improving the area, so that eventually we shall have a large forest in this town. Along the ridges in the north part of the town there are a good many acres of oak, grading from the small reproduction to cordwood size. In addition there are a good many areas covered with pitch pine and oak of similar size. In Sandwich there are four reforestation lots planted by the Commonwealth of Massachusetts. These lots are growing and some day will produce merchantable timber, and again it proves conclusively that the soil is of the proper texture to grow white pine and red pine. At present on the Shawme State Forest we have a large nursery which will be ready for use one year from now. The transplants from this nursery will be used on the State reservation. The trees that were set out two and three years ago are now growing at a rapid rate and it will not be long before we shall see a good stand of worth while trees rather than the scrub oak, pitch pine and dead stubs which greet the eye on all sides. We believe that the future of this town is assured and that the public is fully awake to the necessity and value of the work that is being carried on in Sandwich.

SANDWICH

FOREST TYPES

	Approximate size classes				Per Cent	
	1	2	3	4	Total	Forest Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres	
Pine						
Miscellaneous						
Hardwoods						
Oak			2079	4356	6435	29
Scrub Oak (Plantable)				2290	2290	10
Pine & Hemlock						
Cedar						
Pitch Pine & Oak			604	1321	1925	9
Swamp Maple						
Grey Birch						
Oak, Maple & Grey Birch						
Scrub Oak				9231	9231	42
Pitch Pine			1012	1194	2206	10
Total			3695	18392	22087	
Percentage			17	83		100 79
<u>Transition Types</u>						
Idle Land					717	3
Brush Swamp						
<u>Non-Forest Types</u>						
Salt Marsh					617	2
Agricultural					2515	9
Sand						
Pasture						
Residential					1335	5
Water					644	2
Total area of town					27915	100 100

TRURO

Truro is one of the towns on the lower end of the Cape where the woodland is running out. There are 1900 acres of pitch pine, but this pitch pine is only four or five feet in height and four inches in diameter. It forms a ground cover, but it is of no commercial value. There are large areas covered with hog cranberries which form a good ground cover to hold the moisture, but no forest growth is to be seen. Extensive reforestation will make a great difference in the appearance of this town. Forty-five years ago a man by the name of McKenny brought Austrian pine seed from Europe and planted them in his yard . Today we see the few specimens that remain from his efforts. This is just one more example of the possibilities of forestry on Cape Cod. During the past year fire burned an area from one side of the Cape to the other and bounded on the other two sides by the Pamet River and Wellfleet town line. This area was covered with pitch pine and oak, but the fire has killed practically the entire stand. In order to cover up this ugly scar it is necessary to plant the area.

TRURO

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous							
Hardwoods							
Oak				361	361	16	
Scrub Oak (Plantable)							
Pine & Hemlock							
Cedar							
Pine & Hardwoods							
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				50	50	2	
Pitch Pine				1912,	1912	82	
Total				2323	2323		
Percentage				100		100	17
<u>Transition Types</u>							
Idle Land					4585		33
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					321		2
Agricultural							
Sand					829		6
Pasture							
Residential					5190		38
Water					578		4
Total area of town					13826	100	100

WELLFLEET

Wellfleet has a great area of pitch pine, but the pitch pine is not of large size. There are a few stands of oak of both cordwood size and smaller. In addition there are many extensive areas of plantable land covered with hog cranberries or some other worthless covering. There is a stand of Scotch and pitch pine which was planted a good many years ago. This stand has done fairly well, but now a borer* has gotten into the Scotch pine, killing it rather rapidly. Some seed from the Scotch pine has been thrown and the seedlings are now three feet in height. Even in its present condition, it is a good example of what can be done by planting to reproduce the forest cover of Cape Cod. In the vicinity of South Wellfleet there are large areas of absolutely barren land. A portion of this may be used in the future by summer residents, but a great deal of it will never amount to anything unless reforested.

* This borer, the white spotted sawyer, Latin name *Monohamnus scutellatus*, measures about five-eighths of an inch in length and may be recognized by its nearly uniform black color mottled with white. Many times these grubs probably breed in large numbers in nearby decaying, dead or dying trees and then, because of lack of more suitable conditions, attack living pine. This is no doubt the condition that has occurred in the stand described above. These grubs quickly infest healthy pine and within a short time cause the death of that tree. The heaviest infestation of these grubs is found in dead pine or in logs that are piled in the woods. If the work of the grub is noted in the logs, it will be seen that they make their exit from the wood on its upper side, and as the holes from which they issue admit water, the timber decays rapidly.

The adult insect is a magnificent grayish beetle, finely mottled with light brown and rather conspicuously dotted, especially on the wing covers, with dark brown or nearly black. The body length of the beetle varies from three-quarters to one and one-half inches. The insect is remarkable for its enormous antennae, which may measure from two to three or more inches in length.

WELLFLEET

FOREST TYPES

Approximate size classes

Forest Types	1	2	3	4	Total	Per Cent	
	Acres	Acres	Acres	Acres	Acres	Forest	Town
Pine							
Miscellaneous Hardwoods							
Oak			197	521	718	14	
Scrub Oak (Plantable)				169	169	3	
Pine & Hemlock							
Cedar							
Pitch Pine & Oak			169	155	324	6	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak							
Pitch Pine			338	3659	3997	77	
Total			704	4504	5208		
Percentage			14	86		100	39
Transition Types							
Idle Land					2561		19
Brush Swamp							
Non-Forest Types							
Salt Marsh					1250		9
Agricultural					310		2
Sand					99		1
Pasture							
Residential					3673		28
Water					225		2
Total area of town					13326	100	100

YARMOUTH

A few far-sighted individuals in this town have done some reforestation. Frank Hallowell and M. E. Singleton have underplanted their pitch pine stands with white pine after thinning the pitch pine. The white pine is now growing, at least a foot in height per year and soon it will be necessary to remove the pitch pine entirely. There are 1500 acres of idle land which should be planted. There were some areas of pitch pine found large enough to be put in the cordwood class, but most of the timber growth is in the small diameter class. The summer residents and townspeople are all interested in forestry and the future of this town can be assured.

In Yarmouth there are three reforestation lots planted to Scotch pine, red pine and white pine. One of these lots is near Little Sandy Pond and the other two are near the camp grounds. The lot in the vicinity of Little Sandy Pond was planted to red pine and white pine. The red pine which was planted in open area is now 15 to 18 feet in height and 5 inches in diameter, while the red pine planted under the brush has just kept alive. The white pine has managed to make its way through the overtopping hardwood and grow to considerable height.

The two lots near the camp grounds are in fair condition. One of them on the opposite side of the railroad from the State highway was burned over, but is now replanted. The other one on which Scotch and white pine were planted has been released and appears to be making rapid progress.

A bad fire burned a large acreage from Mill Pond to Chase Garden Creek. This area is now reproducing nothing of value, pitch pine is doing its best to recover, but it should be artificially

planted, otherwise it will just stand idle and be an eye-sore to the travellers on this beautiful highway of Cape Cod.

YARMOUTH

FOREST TYPES

Approximate size classes

Per Cent

	1	2	3	4	Total	Forest	Town
<u>Forest Types</u>	Acres	Acres	Acres	Acres	Acres		
Pine							
Miscellaneous Hardwoods							
Oak			27	900	927	9	
Scrub Oak (Plantable)							
Pine & Hemlock							
Dedar							
Pitch Pine & Oak			175	524	699	7	
Swamp Maple							
Grey Birch							
Oak, Maple & Grey Birch							
Scrub Oak				81	81	1	
Pitch Pine			1383	6997	8380	83	
Total			1585	8502	10087		
Percentage			16	84		100	62
<u>Transition Types</u>							
Idle Land					1585		10
Brush Swamp							
<u>Non-Forest Types</u>							
Salt Marsh					1047		6
Agricultural					1920		12
Sand							
Pasture							
Residential					806		5
Water					893		5
Total area of town					16338	100	100

